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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
SACKEY, EBENEZER O	

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GOTZ-PETER SCHINDLER, OTTO MACHHAMMER, KLAUS JOACHIM MULLER-ENGEL, CLAUS HECHLER, JOCHEN PETZOLDT, CHRISTOPH ADAMI, and KLAUS HARTH

Appeal 2010-002511
Application 10/813,010
Technology Center 1600

Before DONALD E. ADAMS, MELANIE L. McCOLLUM, and STEPHEN WALSH, *Administrative Patent Judges*.

McCOLLUM, *Administrative Patent Judge*.

DECISION ON APPEAL[1]

This is an appeal under 35 U.S.C. § 134 involving claims to an oxidation and/or ammoxidation process. The Examiner has rejected the

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[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE" (paper delivery mode) or the "NOTIFICATION DATE" (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

claims as obvious. We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

STATEMENT OF THE CASE

Claims 1-23 are pending and on appeal (App. Br. 1).[2] We will focus on claim 1, the only independent claim on appeal, which reads as follows:

1. A process for preparing at least one partial oxidation and/or ammoxidation product of hydrocarbon by subjecting at least one saturated hydrocarbon H to heterogeneously catalyzed dehydrogenation in the gas phase to form a product gas mixture A which comprises at least one partially dehydrogenated hydrocarbon H, leaving constituents present in the product gas mixture A, other than the saturated hydrocarbon H and other than the partially dehydrogenated hydrocarbon H therein, or partly or fully removing them to obtain a product gas mixture A', and subjecting product gas mixture A and/or product gas mixture A', as a constituent of a gas mixture B, to at least one heterogeneously catalyzed partial oxidation and/or ammoxidation of the at least one partially dehydrogenated hydrocarbon H present in the product gas mixture A and/or product gas mixture A', which comprises subjecting the product gas mixture A, the product gas mixture A' and/or the gas mixture B, before the at least one heterogeneously catalyzed partial oxidation and/or ammoxidation, to at least one mechanical separating operation by which solid particles present in these gas mixtures are removed.

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[2] Contrary to the statements in the Appeal Brief and Examiner's Answer concerning the status of any amendments after the Final Rejection, the record reflects that an Amendment After Final Rejection (AAFR) was filed with the Appeal Brief on November 3, 2008. This AAFR, at page 8, purports to amend claims 10-12. However, the record does not include page 4 of the AAFR, which presumably includes claims 10 and 11 and the beginning of claim 12. Thus, these amendments are not depicted in the record. In addition, the record does not reflect that the Examiner has acted on this AAFR.

Claims 1-23 stand rejected under 35 U.S.C. § 103(a) as obvious over Maher et al. (EP 0,938,463 B1, Jun. 19, 2002) in view of Maunders et al. (US 5,550,309, Aug. 27, 1996) (Ans. 4).

Appellants contend:

> [N]either of the cited references . . . provides a context for an interruption of a two stage hydrocarbon conversion process in which entrained heterogeneous catalyst particles from a first stage hydrocarbon dehydrogenation are separated by some mechanical means before the gas phase containing dehydrogenated hydrocarbon is subjected to oxidation and/or ammoxidation over a heterogeneous catalyst specific for this type of reaction.

(App. Br. 7.)

ISSUE

Does the Examiner set forth a prima facie case that Maher and/or Maunders teach or suggest that, before the heterogeneously catalyzed partial oxidation and/or ammoxidation, the gas mixture is subjected to a mechanical separating operation by which solid particles present in the gas mixture are removed?

PRINCIPLES OF LAW

"In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness. Only if that burden is met, does the burden of coming forward with evidence or argument shift to the applicant." *In re Rijckaert*, 9 F.3d 1531, 1532 (Fed. Cir. 1993) (citation omitted).

FINDING OF FACT

1. Maunders discloses:

> [C]old ethane is fed . . . to a reactor (1). . . . The reactor (1) contains a catalyst bed which comprises the catalyst admixture of the dehydrogenation catalyst and the porous coated catalyst, the porous coated catalyst being capable of adsorbing/reacting with hydrogen. The ethene produced is removed from the reactor through the heat exchanger (5) and the timed valve (6). . . . Combustion of the retained hydrogen, any carbon deposits on the catalyst and oxidation of the reduced oxide occurs thereby generating heat to maintain the catalyst temperature. Combustion gases exit from the reactor through the heat exchanger (5) and non-return device (11). A sufficient portion of the combustion gas is recycled to reactor 1 via damper (12) and line (13) to the air feed in order to ensure that the oxygen concentration is below the flammable limit for safety reasons, and that the inlet temperature of the gas into reactor 1 is warmed above the dew point; the remainder of the combustion gas leaves through line 14 via damper (15).

(Maunders, col. 4, l. 64, to col. 5, l. 20.)

ANALYSIS

The Examiner relies on Maher for teaching "a process for converting alkanes into unsaturated aldehydes such as acrolein and acrylic acid," the process including conversion of the alkane to the corresponding alkene (Ans. 5). However, the Examiner does not explain how Maher teaches or suggests that, before the alkene is oxidized to form the aldehyde, the gas mixture is subjected to a mechanical separating operation by which solid particles present in the gas mixture are removed.

In addition, the Examiner does not demonstrate that Maunders overcomes this deficiency. The Examiner notes that "the removal and avoidance of combustion material is discussed" at column 5, lines 1-20

(Ans. 7). We note that this portion of Maunders describes combustion (Finding of Fact 1). However, there is no explicit disclosure that this process includes a mechanical separating operation by which solid particles present in the gas mixture are removed, and the Examiner has not explained how such a disclosure would have been implicit.

CONCLUSION

The Examiner has not set forth a prima facie case that Maher and/or Maunders teach or suggest that, before the heterogeneously catalyzed partial oxidation and/or ammoxidation, the gas mixture is subjected to a mechanical separating operation by which solid particles present in the gas mixture are removed. We therefore reverse the obviousness rejection.

REVERSED

dm

OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.
1940 DUKE STREET
ALEXANDRIA VA 22314